20000115.ba v02_n780.bam.20000115

>From ???@??? Sat Jan 15 17:57:37 2000 -0600
Date: Sat, 15 Jan 2000 17:54:59 CST
From: Old Tube Radios <boatanchors@theporch.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: BOATANCHORS digest 2780
Message-Id: <20000115235532.5D8CE274C7@devel43.theporch.com>

BOATANCHORS Digest 2780

Topics covered in this issue include:

1) Re: BOATANCHORS digest 2778
   by William Donzelli <aw288@osfn.org>
2) Re: Help on TV-7/U tube tester
   by James Hanlon <knjhanlon@uswest.net>
3) WW2 Navy Nomenclature, etc.
   by Ray Mote <rmote@rain.org>
4) URM-25D......fini
   by Arden Allen <gumbear@pacbell.net>
5) Re: Johnson and fuses
   by Jderm740@aol.com
6) Re: Copper chopper (?)
   by "Barry L. Ornitz" <ornitz@tricon.net>
7) German Tubes and Luger (Long)
   by David Prince <davprin@gil.com.au>
8) ht-30 schematic.
   by luc dugas <collins2@globetrotter.net>
9) hallicrafters ht-30
   by luc dugas <collins2@globetrotter.net>
10) Re: [ARC5] "ARC-5" and Other WWII Military Nomenclature Systems
   by Lenox Carruth <carruth@geo-thermal.com>
11) Receiver R1155/PS/Amp. For Sale
   by Andre Guibert <aguibert@sympatico.ca>
12) edge wound coil tricks?
   by "Pete Ferrand" <pete@vermontel.net>
13) Re: edge wound coil tricks?
   by Arden Allen <gumbear@pacbell.net>
14) R1155 For Sale
   by Andre Guibert <aguibert@sympatico.ca>
15) Pre-WWII nomenclature for TCS
   by Sheldon Wheaton <swheaton@sky.net>
16) Re: Pre-WWII nomenclature for TCS
   by Hue Miller <kargokult@proaxis.com>
17) Need some DX-100 Audio Advice
   by James Hanlon <knjhanlon@uswest.net>

Date: Fri, 14 Jan 2000 11:37:37 -0500 (EST)
From: William Donzelli <aw288@osfn.org>
To: Old Tube Radios <boatanchors@theporch.com>
cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: BOATANCHORS digest 2778
Message-ID: <Pine.SUN.3.91-FP.1000114111351.20311A-100000@osfn.org>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

> The original Navy nomenclature assigned to radio receivers and transmitter
> sets (as opposed to components) was "R" plus one letter for aircraft
> receivers, "R" plus two letters for ground and shipboard receivers, "G"
> plus one letter for aircraft transmitters and "T" plus two letters for
> ground and shipboard transmitters. "T" plus one letter having previously
> been assigned to telephone equipment, including sound powered. It would be
> interesting to know who picked the "G", and why.

Things just were not that planned out. I think they started at RA and TA right around the end of the Great War, and just went on from there. If the Navy planned out the above described system, they sure did not use it. In fact, of receivers, the RU is the only aircraft receiver in the RA thru RZ spread. I am sure someone could have put an RE, RF, RG, RO (the "common" ones) in a plane, but it wouldn't be fun. Likewise, in the RAA thru RAZ spread, RAJ, RAM, RAP (maybe - subject to more research), RAT, RAV, and RAY are all aircraft sets. As for the transmitters, the Navy did have TA thru TZ (well, there are a few holes), but I think the only one that has any telephone (voice) ability is the TB of 1919.

> When the two letter codes
> for aircraft sets ran out, aircraft transmitters became "AT" plus one
> letter and aircraft receivers "AR" plus one letter. To the best of my
> knowledge, these only went up to ARD and ATD before the AN/ system took
> over.

ARE thru ARK and ATE thru ATK are the aircraft television sets (the cameras ("Conversion Units") pop up from time to time).

William Donzelli
aw288@osfn.org

Message-ID: <387F543F.27DF4A66@uswest.net>
Date: Fri, 14 Jan 2000 09:52:15 -0700
From: James Hanlon <knjhanlon@uswest.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Help on TV-7/U tube tester

Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Claudio,

If your friend can't find a substitute meter for his tube tester, and if he still has the original non-functional meter, he might be able to replace the meter movement with one that is working. Several times now (with an Elmac AF-67 and a Hallicrafters SX-73) I've found a meter at my local "Electronic Surplus" store that has the same movement and rear case configuration as the one that I'm trying to fix. I've put the meter scale card from the dead unit onto the transplant movement/rear end and then mated the front end from the dead unit to it and voila I have a functional replacement meter.

Hope this helps,

Jim, W8KGI

Date: Fri, 14 Jan 2000 10:18:00 -0800 (PST)
From: Ray Mote <rmote@rain.org>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: WW2 Navy Nomenclature, etc.
Message-ID: <Pine.GSO.4.21.0001140949520.24111-100000@coyote.rain.org>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

Although the new "AN" system began during the war, conversion by Navy staff to using the new system was spotty at best, and slow to occur. To understand it thoroughly, I guess you'd have have had to be on the inside at the time. The Navy procurement environment between 1974 and 1995 does offer some hints. The various bureaus (Bureau of Ships, Bureau of Aeronautics, Bureau of Ordnance, etc.) were probably as independent then as NAVSEA and NAVAIR are today. In BuShips, procurement was done by ship class, with an individual in charge of each class who had procurement managers working under him, each in charge of a particular aspect (comms gear, radars, etc.) and responsible for contracting, installation/checkout, training, spares support, etc. Remember that the environment was very "fluid" at the time, with rapidly changing needs, procedures, nomenclature systems, technology, etc. This was further confused by infighting between the services for allocations of materials & manufacturing plants and infighting between the various Navy departments (particularly between BuShips and BuAer, a situation that continues today). When going for a nomenclature assignment for a new radio, the decision to apply under

either the old Model Letter or the newer "AN" system was probably based partly on the program manager's preferences and partly on which route he thought would be less hassle & delay. The focus was more on getting ships built, outfitted, launched, and to the combat areas where they were needed. Whatever method appeared to involve less red tape was selected, and they really didn't care whether nomenclature assignments were consistent. That's also why you see four or five different operator's manuals on gear that had multiple contracts over a period of time -- the program manager would go for a new tech manual number simply to bypass a bottleneck in the organization that controlled the old manual number, etc. (My wife, who issued NAVSEA tech manual numbers for years, has seen exactly this situation many times.)
It wouldn't surprise me to see a new nomenclature assignment on the same gear, for exactly those reasons. If you begin to envision a conglomeration of feudal kingdoms, you're on the right track! <grin>

Ray Mote, K5FKT <rmote@rain.org> Oxnard, CA

Date: Fri, 14 Jan 2000 10:44:56 -0800
From: Arden Allen <gumbear@pacbell.net>
Subject: URM-25D......fini
To: Old Tube Radios <boatanchors@theporch.com>
Message-id: <0FOC001UK9GF5B@mta3.snfc21.pbi.net>
MIME-version: 1.0
Content-type: text/plain; charset=ISO-8859-1
Content-transfer-encoding: 7bit

The URM-25D restoration is finished. And it has been one of my most pleasing outcome restoration projects I have ever done. My unit was built for the Navy Department Bureau of Ships by J. H. Kenney & Co., Chicago, IL. It is serial number 6538 built under contract NObsr-64698.

Although there are no dates to be found on any of the components my guess is it was built in the early 60's as the power cord is permanently attached by a Heyco cord grip through the front panel with a three wire cord. The Heyco clamp configuration is original manufacure, not a retrofit. Sonme units, as evidenced by my URM-25D manual from Trad Television Corp., utilized a two wire cord that used a TV "cheater cord" style connector (not surprising coming from a television manufacturer). Having seen a few URM-25D's over the years it seems power cord connector standards were one of the most difficult to manage (will anybody ever get it right?). The one I like the best is the three wire MS (Cannon plug) connector but that was too good and had to go by the boards apparently.

The URM-25D is a virtue (with one "minor" exception, seriviceability) in itself by its elegant design. Simple, efficient, precise and rugged are the adjectives I think apply. Of course, nobody knew at the time that the plastic molded capcitors would not withstand the test of time but the ceramics, micas, and hermetically sealed papers still test like new in my unit. Other than the unfortunate damage caused by the 6AH6 buffer that went into melt-down, everything inside my unit looks as if it will survive well beyond my time assuming it eventually finds loving homes on its journey towards eternity.

The power supply uses non electrolytic capacitors so that is a worry removed. There is only one electrolytic in the entire design, an axial leaded unit across the 6AG7 output amplifier's cathode resistor, buried in the output amplifier subchassis. Mine, still original, tested like a new cap so I left it alone.

The only really weak point in the design is the vulnerability of the feedthrough capacitors at the rear of the power line filter to damage when removing and reinstalling the case. It seems the line filter was a later addition. The caps are ceramic feedthroughs that can be broken if slammed against the edge of the case if care is not taken. On my unit a piece of formed aluminum was mounted to protect the caps and it does not look original. Probably the result of a field bulletin or the efforts of an entrepreneur. In the Trad manual the two capacitors are specified as 1000 pF but my unit had 56 pF feedthroughs. I added 1000 pF 3 KV disks in parallel with the feedthroughs just for drill. One of the two Sprague Z-50 RF chokes in one side of the filter had been replaced as the original had burned to smithereens as evidenced by the burn marks on the inside of the filter subchassis. Probably someone tried to remove the case while the power cord was still plugged into AC.

The step attenuator had a couple of its resistors changed, not too difficult to get to them but they are oddball value precision 1/8 watt types that just fit into their machined out passageways inside the attenuator housing. Fortunately you can get 1/8 watt metal film resistors from Digi-Key. The resistors needed their soldering touched up because they were installed with insufficient heat. I had to use a 1/4 inch 800 degree tip in my Weller to get enough heat into the terminals to make the solder flow properly. All of the resistors were good.

I've been testing my URM-25D for almost a week now and it's impressive how stable from a cold start this little generator is. With good caps there is really nothing else that can contribute much to setting drift. Setting the RF output level and modulation percentage from a cold start requires very little if any touch-up after the unit is warmed up for several hours. From a cold start at 1.5 Mc. it took 12 hours for the generator to drift 3 Kc. Only four of the six frequency ranges needed touch up of calibration. The dial tracks within its required 1% reading accuracy at every point on the scale on all ranges. Assuming my unit is representative of URM-25D's in general these generators are truly laboratory grade instruments.

Arden Allen   KB6NAX   Vallejo, CA   gumbear@pacbell.net

From: Jderm740@aol.com
Message-ID: <24.14dbea.25b0e642@aol.com>
Date: Fri, 14 Jan 2000 15:51:14 EST
Subject: Re: Johnson and fuses
To: Old Tube Radios <boatanchors@theporch.com>
MIME-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
Content-Transfer-Encoding: 7bit

Howdy

I have been thinking about why they used two fuses in the plug and I think it was from the days when the plug could be incerted either way. No wide blade codeing. That was, no matter which way you plugged it in a fuse was always in the hot side.
Is possible?

Jack McDermott   Jderm740@aol.com

Message-Id: <200001150434.XAA10755@flash.naxs.net>
From: "Barry L. Ornitz" <ornitz@tricon.net>
To: Old Tube Radios <boatanchors@theporch.com>
Cc: "Boatanchors Mailing List" <boatanchors@theporch.com>
Subject: Re: Copper chopper (?)
Date: Fri, 14 Jan 2000 23:34:04 -0500

Hi Mike,

The size of the plates is rather small for a 10 or 20 amp supply if the rectifiers are selenium.
For this much current, most commercial selenium bridges would have plates at least 6 to 8 inches on a side. Similar dimensions would be needed for copper oxide rectifiers too. [This is using a rating of 0.4 amp/in^2 for both as listed by Henney and Fahnestock.] The dimensions do not match any models made by Sarkes-Tarzian, but their bridges with plates 3 inches on a side are rated at 2 to 3 amps. Because selenium rectifiers can take high overloads for short time periods, the unit might supply 20 amps - but only if operation were limited to less than 1 minute on and 30 minutes off.

My guess is that with only 4 plates and a bridge configuration, the unit is selenium. Copper oxide units would require two element is each of the four sides of a bridge.

If someone had run the unit for quite a while at the higher currents, the ragged hole would easily be explained as heat damage. Does the unit have a rotten garlic odor?

I suggest scrapping the rectifier and using silicon diodes of the proper rating. These will generate less heat but they will still need heat sinking.

73, Barry L. Ornitz   WA4VZQ   ornitz@tricon.net

Message-ID: <388006F7.80A018F@gil.com.au>
Date: Sat, 15 Jan 2000 15:34:47 +1000
From: David Prince <davprin@gil.com.au>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: German Tubes and Luger (Long)
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

G'day BA folk,

As a collector of military radio equipment, I also collect 'odd' type tubes to build up a future display.

Last month I purchased a couple of boxes of 'junk' which seemed to have quite a few tubes of German origin, from a deceased estate. The deceased person was of Russian descent and he had been a ship's radio officer. Everything was wrapped in clingwrap secured with rubber bands followed by foam rubber (now just crumbs)and more rubber bands followed by more clingwrap and more rubber bands. It certainly did the job because these were obviously the spares he carried around from ship to ship and most are in as new condition.

Anyway, today I finally got all the tubes unwrapped and listed. Here are the German types I found. Can anyone let me know what types of equipment these would have likely been used in aboard ships?

RV12P2000
RD12Ta
RD12Tf
LG3
LG4
LG200
LD15
LV13

and British

SV-2C39A (CV2516)
CV35 Klystron
CV1866 Magnetron
KS9-20 Reflex Klystron
CV2134 Phototubes

I found everyone of these tubes listed in TUBEDATA. What a great program that is! Well worth having if you're into tubes.

Oh, the Luger. Well, in amongst this gear when I got it home, was a piece of homebrew gear labelled an Amplifier. I was intrigued because there was only one rf connector but I could not undo any of the screws holding the case together. A friend of mine cut down a hex wrench to get under the front handles to the hex screws holding the handles and the front panel. No electronics inside - just a 9mm DWM Luger pistol and a box of ammunition concealed inside what was a box built for that purpose. All the case screws (except the hex screws) had nuts on the inside and the threads sealed with so black 'goo'.

The Luger is now in the hands of the local Police awaiting my weapons collector licence to be approved.

The moral of this story - check inside every piece of equipment before dumping or passing on to someone else.

--
Dave Prince VK4KDP
Ipswich, Queensland, Australia
davprin@gil.com.au
http://www.home.gil.com.au/~davprin

Message-ID: <388066F8.98F6CDDD@globetrotter.net>
Date: Sat, 15 Jan 2000 08:24:25 -0400
From: luc dugas <collins2@globetrotter.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: ht-30 schematic.
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

i need badly the information on page three of the manual of ht-30. i'm missing that page only. if someone can scan that page for me i would in debt to that person for zillions years.   luc ve2lgj 73s

---

Message-ID: <38806E4C.732A4530@globetrotter.net>
Date: Sat, 15 Jan 2000 08:55:41 -0400

From: luc dugas <collins2@globetrotter.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: hallicrafters ht-30
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

in a previous message i fogot to mention " hallicrafters " ht-30 transmitter. i'm looking for the information on page three of the owner's manual. thank for your attention. luc ve2lgj 73s

----

Message-ID: <38808F78.4869625A@geo-thermal.com>
Date: Sat, 15 Jan 2000 09:17:12 -0600
From: Lenox Carruth <carruth@geo-thermal.com>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
CC: Boatanchors <boatanchors@theporch.com>, ARC-5 <arc5@qth.net>
Subject: Re: [ARC5] "ARC-5" and Other WWII Military Nomenclature Systems
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Now, at last, we understand why Navy radio equipment is built like a steam engine!

Sheldon Wheaton wrote:

> The SE stands for "Steam Engineering" which was the
> part of the Navy responsible for planning radio design at that time.

--

Lenox

```
---------------------------------------------------------------------
Lenox Carruth           Dallas, TX           carruth@geo-thermal.com
Collector of WW-II Communications Equipment and Memorabilia

Wanted:  TBX accessories,   GY-11,   WW-II Link A-12 Sextant
---------------------------------------------------------------------
```

Message-Id: <1.5.4.16.19800104132443.1c47865e@pop1.sympatico.ca>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
To: Old Tube Radios <boatanchors@theporch.com>
From: Andre Guibert <aguibert@sympatico.ca>

Subject: Receiver R1155/PS/Amp. For Sale
Date: Sat, 15 Jan 2000 12:32:22 -0500

Bonjour to All
Functional above set up, could need some minor tweeks.
Price: 250$(US), plus shipping from Quebec(Canada).
Pictures are worth a thousand words(Except"Mint" :).
Try: http://www.enter-net.com/~9sdchoui/page5.html
Andre
Andre Guibert
aguibert@sympatico.ca

From: "Pete Ferrand" <pete@vermontel.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: edge wound coil tricks?
Date: Sat, 15 Jan 2000 13:13:39 -0500
Message-ID: <NDBBINAMKKBBCHMFOAJBCEPADMAA.pete@vermontel.net>

After cleaing the carbon and other detritus off the variable inductor in the output circuit of a Henry 2K Classic X, I'm left with the original problem that the pulley that runs around the inside of the coil doesn't make good contact all around. It's pretty much that one point makes good contact but when the pulley is rotated 180 degrees, contact is flakey.

Not good when you're tuning a linear. Once you've impressed visitors with arcing and sparking, that is.

Is there some trick to setting up one these critters? Seems like I could center the coil better by adjusting the three insulators that hold the coil, and to a degree this is possible, but they're already at the edge of what little adjustment can be made given the size of the holes through which their mounting screws run. Now of course I could enlarge the holes, which would require removing the coil, which would in turn require disassembling the amp (huge project).

However, experience has taught me that usually things are designed not to require hacking up to work. Now of course I've tried increasing the tension on the silver plated straps that hold the rod the pulley rides on, but to no avail. Looks as though better (i.e. springier) straps would hold the tension better, but again, this I would think was designed to work correctly and unless years of rf have reduced the springiness of the material they should work too.

Must be some old timer's trick I'm missing :-)

-Pete
WB2QLL
Plainfield, NH
pete@vermontel.net

Date: Sat, 15 Jan 2000 11:55:57 -0800
From: Arden Allen <gumbear@pacbell.net>
Subject: Re: edge wound coil tricks?
To: Old Tube Radios <boatanchors@theporch.com>
Message-id: <0FOE00JCB7FCWV@mta1.snfc21.pbi.net>
MIME-version: 1.0
Content-type: text/plain; charset=ISO-8859-1
Content-transfer-encoding: 7bit

Hi Pete;

> Must be some old timer's trick I'm missing :-)

One thing I've learned from the roller inductors I've played with is that it is an inherently unreliable mechanism. The little wheel rolls *over* accumulated dust and oxides with the result that arcing through the junk occurs and with reapeated useage the "track" becomes cruddier and cruddier. There should instead be a mulitple contact wiper with the wheel just required to maintain alignment on the turn. The best you can do is keep the contacting surfaces clean and coated with a thin film of electrical grade *petrouleum* based grease (NOT silicone grease).

Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

Message-Id: <1.5.4.16.19800104182715.1e177834@pop1.sympatico.ca>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
To: Old Tube Radios <boatanchors@theporch.com>
From: Andre Guibert <aguibert@sympatico.ca>
Subject: R1155 For Sale
Date: Sat, 15 Jan 2000 17:34:55 -0500

Bonjour to All
Sorry for the wrong URRl
Should be "Page 6".
http://www.enter-net.com/~9sdchoui/page6.html
Andre
Andre Guibert
aguibert@sympatico.ca

Date: Sat, 15 Jan 2000 16:42:41 -0600 (CST)
From: Sheldon Wheaton <swheaton@sky.net>
To: Old Tube Radios <boatanchors@theporch.com>
cc: ezeran@concentric.net
Subject: Pre-WWII nomenclature for TCS
Message-ID: <Pine.GSO.3.96.1000115161518.809A-100000@sky.net>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

On Thu, 13 Jan 2000, Ed Zeranski wrote:

> Greg Greenwood has some good TCS stuff on his web page with the Collins
> type number, 51** can't remember now, listed for the TCS TX and RX.

Here are the Collins nomenclatures for the major TCS components, apparently prior to the adoption of the radio by the Navy:

56Q-1	Transmitter
51Q-1	Receiver
314M-1	Remote Control
190Z	Antenna Loading Coil
409M-5	115vac power supply

This information comes from an "early" manual that I have which is marked TCS-5 on the front cover, but throughout the manual, it refers to the Transmitter as a 56Q, and receiver as 51Q. The schematics are all on Collins title-block drawings, and some are dated as early as Sept, 1941.

Ed Z said:

> ....I'm still looking for a
> picture of a TCS mounted in a vehicle. I know there should be something
> especially from Guadacanal but am still coming up dry.

I have an 8 page document that details the installation of the TCS radio system in the Jeep. It is a Marine Corps publication, and is not dated, but the drawings have a date of Feb. 13, 1943. The system depicted features a "special 12 volt electrical system" which appears to be a big generator located between the two front seats (perhaps driven by a PTO? - I don't know Jeeps!). The generator powers a TCS type dynamotor unit which is housed in a waterproof case over the right rear tire, and then the transmitter and receiver are mounted over the left rear tire in another waterproof case. Remote control box is mounted on "special brackets" in the glove box, and an MP-37 mast base is mounted right behind the driver on the side of the jeep. The antenna loading coil is attached to the MP-37 mounting bracket, but in the diagram, it looks different than the standard TCS loading coil - actual coil looks the same, but the box is different, maybe part of the MP-37 base.

Ed, if you need a copy of this, send me your address. If there's enough interest from others, I'll scan it in and post on my web site.

73,
Sheldon KC0CW

Message-Id: <3.0.5.32.20000115152350.007d64d0@proaxis.com>
Date: Sat, 15 Jan 2000 15:23:50 -0800
To: Old Tube Radios <boatanchors@theporch.com>
From: Hue Miller <kargokult@proaxis.com>
Subject: Re: Pre-WWII nomenclature for TCS
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

>On Thu, 13 Jan 2000, Ed Zeranski wrote:

>Here are the Collins nomenclatures for the major TCS components,
>apparently prior to the adoption of the radio by the Navy:
>
>56Q-1   Transmitter.......[etc.]
>
>This information comes from an "early" manual that I have which is marked
>TCS-5 on the front cover, but throughout the manual, it refers to the
>Transmitter as a 56Q.....

--There is a seller in Iowa, Cedar Rapids even, if i recall, who just a few years back advertised for sale in ARC, a unit or two - get this - nameplated only with the Collins nomenclature - NO Navy designation on it. I thot at the time that would be pretty darn collectible, but i was pretty much out of TCS by then. (A move i have to reconsider from time to time, particularly when regarding something i own that wants, 12, 105, 350, 500, 1200, AND -13.5 volts to perform its tricks).

Also, i note the manual for the Navy TCH, not a common unit, has on the cover ONLY " 18M Radio Receiver-Transmitter ". (Ex Navy radio man told me these were used in torpedo recovery small boats used in training in the Pac NW, after they were replaced, by ???? other gear, the TCH on hand were disassembled. (?possibly some mistaken training exercise?). That's apparently when he grabbed his.

BTW, did you note in your TCS-5 that this model has wider selectivity than other models, specifically for the land vehicle application? At least, the Navy manual sez so. I wonder how you would reverse that so-called feature.
Hue Miller

Message-ID: <3881071F.552DF8EB@uswest.net>
Date: Sat, 15 Jan 2000 16:47:43 -0700
From: James Hanlon <knjhanlon@uswest.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Need some DX-100 Audio Advice
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Anchorites,

(You don't have to be a DX-100 expert to give me some advice on this one.)

I've had my Heath DX-100 out on the bench in the unheated garage for a couple of weeks now, trying from time to time to figure out what's wrong with the audio driver stage. The DX-100 uses a triode connected 12BY7A with a 2:1 primary to 1/2 secondary step down transformer to couple its plate to the control grids of the 1625 modulator tubes. All of the components associated with the driver stage (with the possible exception of that transformer) measure OK, the cathode resistor is on value, the control grid resistor (470K) is OK and there is no leakage through the coupling cap from the previous stage. The B+ level is OK. Two 12BY7's that both test good on my Hickok behave the same way.

In operation with a scope on the plate of the 12BY7, I see the stage being driven into cutoff (plate voltage flattens out at the high B+ level) and into saturation (plate voltage bottoms out when the control grid tries to go positive with respect to the cathode. There is about a 90 volt swing peak-to-peak between these two limits. The 1625 grids are not being driven into conduction while this is going on, their highest peak grid drive is about 20 volts negative with respect to cathode.

Today, having tried a lot of other things, I decided to measure some characteristics of the driver transformer. I drove the primary (12BY7 side) with the 1625 grid side secondary, including the center tap, completely disconnected, by driving the transformer from a 1500 Hz audio signal generator whose internal impedance is about 634 ohms and whose no load output voltage was adjusted to 1 volt. The generator output voltage dropped to 0.616 volts when the transformer primary was connected to it. Doing my math, this gives me a load resistance for the transformer of about 1000 ohms.

This seemed like an awfully low resistance for an unloaded audio transformer, so I pulled an old output transformer from my junk box that is rated to match 2000 ohms to 600 ohms. With no load on the 600 ohm secondary, I had to put about 150K ohms between the transformer primary and the sig generator output to drop the voltage across the primary to half of its original value. From this I infer that the resistive load of this transformer's primary is about 150K ohms - much higher than that of my DX-100 driver transformer.

It seems to me that if the driver transformer is presenting an artificially low impedance load to the output of the 12BY7, the net output voltage swing to the transformer primary is going to be cut down considerably. Does this seem reasonable to you folks as well?

Would anyone happen to have a driver transformer around that you might be able to measure? Is my 1K reading typical or unusual? Or would you have a driver transformer you would be willing to sell me? A transformer from a junker DX-100 would be ideal. A transformer with the 2:1 step down ratio, single ended primary to 1/2 center-tapped secondary, would do the job.

Any other advice would also be appreciated. It's getting cold out there in the garage.

Thanks,

Jim, W8KGI

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